



Practice

5.1 Introduction to Quadratic Functions

Show that each function is a quadratic function by writing it in the form $f(x) = ax^2 + bx + c$ and identifying a , b , and c .

1. $f(x) = (x - 3)(x - 5)$ _____

2. $g(x) = (7 - x)(9 - x)$ _____

3. $k(x) = -3(x - 11)(x + 1)$ _____

4. $h(x) = (2x + 5)(3x - 1)$ _____

5. $d(x) = (x - 3)^2 - 4$ _____

Identify whether each function is quadratic. Use a graph to check your answers.

6. $f(x) = -4x + x^2$ _____

7. $k(x) = \frac{1}{x}$ _____

8. $h(x) = \frac{2x^3 + x}{x^2 - 1}$ _____

9. $g(x) = 16 - 3x$ _____

10. $b(x) = x^2 - 2x(x + 1)$ _____

11. $m(x) = 3x - x(x + 9)$ _____

State whether the parabola opens up or down and whether the y -coordinate of the vertex is the minimum value or the maximum value of the function.

12. $f(x) = 5x^2 - 3x$ _____

13. $g(x) = 4x^2 + 7x - 2$ _____

14. $h(x) = (5 - x)(2 - 3x)$ _____

15. $q(x) = (4 - x)(2 + 7x)$ _____

Graph each function and give the approximate coordinates of the vertex.

16. $k(x) = 4x^2 - 3$

17. $h(x) = -x^2 - x + 6$

18. $p(x) = -(x + 4)(x - 0.5)$


